Please amend claims 1, 9-11, 15-16, 23-30, 35-39, 42-43, 51-53, 57-58, 65-72, 77-81 and 84 as follows:

1. (Currently Amended) A polygon drawing apparatus which draws polygon by performing intensity processing a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating device, said intensity value generating device comprising:

an edge calculating device which ~~derives~~ calculates line intersection data associated with an intersecting portion between each of edges of the polygon to be drawn, and each scan line, using vertex coordinates of the polygon to be drawn, the line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing device which sequentially calculates the intensity value to be given to each portion of the polygon in the scanning direction with respect to said each scan line, based on the line intersection data obtained for said each scan line by said edge calculating device.

2. (Original) A polygon drawing apparatus according to claim 1, wherein said edge calculating device comprises:

means for calculating a first pair of positions on lattice points of displayed grid boxes that are located adjacent, respectively, to a pair of real intersections between said each scan line and said one of said edges that is located on the upstream side as viewed in the scanning direction, on the downstream side as viewed in the scanning direction, to obtain said first pair of outside intersection and inside intersection;

2

means for calculating a second pair of positions on lattice points of the displayed grid boxes that are located adjacent, respectively, to a pair of real intersections between said each scan line and said one of said edges that is located on the downstream side as viewed in the scanning direction, on the upstream side as viewed in the scanning direction, to obtain said second pair of outside intersection and inside intersection; and

means for calculating a first initial value from the intensity value at the outside intersection of said first pair, and a second initial value from the intensity value at a lattice point of one of the displayed grid boxes that is located adjacent to the inside intersection of said second pair on the downstream side as viewed in the scanning direction.

3. (Previously Presented) A polygon drawing apparatus according to claim 1, wherein said edge calculating device calculates said first pair of outside intersection and inside intersection and said second pair of outside intersection and inside intersection, based on trajectories obtained by dragging a diamond-like block between vertices of the polygon to be drawn, said diamond-like block having vertical and horizontal dimensions each corresponding to an interval of a displayed grid.

4. (Previously Presented) A polygon drawing apparatus according to claim 2, wherein said edge calculating device calculates said first pair of outside intersection and inside intersection and said second pair of outside intersection and inside intersection, based on trajectories obtained by dragging a diamond-like block between vertices of the polygon to be drawn, said diamond-like block having vertical and horizontal dimensions each corresponding to an interval of a displayed grid.

5. (Original) A polygon drawing apparatus according to claim 1, wherein said scan line processing device comprises:

means for generating the intensity value to be given to each portion of the polygon along the scanning direction in a range from the outside intersection to the inside intersection of said first pair for said each scan line, by progressively increasing the intensity value at said increasing rate in said range from the outside intersection to the inside intersection of said first pair for said each scan line;

3

means for generating a constant intensity value to be given to each portion of said polygon along the scanning direction in a range from the inside intersection of said first pair to the inside intersection of said second pair for said each scan line; and

means for generating the intensity value to be given to each portion of the polygon along the scanning direction in a range from the inside intersection to the outside intersection of said second pair for said each scan line, by progressively decreasing the intensity value at said decreasing rate in said range from the inside intersection to the outside intersection of said second pair for said each scan line.

6.   (Previously Presented) A polygon drawing apparatus according to claim 2, wherein said scan line processing device comprises:

means for generating the intensity value to be given to each portion of the polygon along the scanning direction in a range from the outside intersection to the inside intersection of said first pair for said each scan line, by progressively increasing the intensity value at said increasing rate in said range from the outside intersection to the inside intersection of said first pair for said each scan line;

means for generating a constant intensity value to be given to each portion of said polygon along the scanning direction in a range from the inside intersection of said first pair to the inside intersection of said second pair for said each scan line; and

means for generating the intensity value to be given to each portion of the polygon along the scanning direction in a range from the inside intersection to the outside intersection of said second pair for said each scan line, by progressively decreasing the intensity value at said decreasing rate in said range from the inside intersection to the outside intersection of said second pair for said each scan line.

7.   (Previously Presented) A polygon drawing apparatus according to claim 5, wherein said increasing rate is determined based on a slope of the edge on the upstream side as viewed in the scanning direction, and said decreasing rate is determined based on a slope of the edge on the downstream side as viewed in the scanning direction.

8.   (Previously Presented) A polygon drawing apparatus according to claim 6, wherein said increasing rate is determined based on a slope of the edge on the upstream side as

viewed in the scanning direction, and said decreasing rate is determined based on a slope of the edge on the downstream side as viewed in the scanning direction.

9.   (Currently Amended) A polygon drawing method of drawing a polygon by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising:

an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each of edges of the polygon to be drawn, and each scan line, using vertex coordinates of the polygon to be drawn, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of the polygon in the scanning direction with respect to said each scan line, based on the line intersection data for said each scan line obtained by said edge calculating step.

10.   (Currently Amended) A storage medium which stores a program that enables implementation of a method of drawing a polygon by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising:

an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each of edges of the polygon to be drawn, and each scan line, using vertex coordinates of the polygon to be drawn, said line intersection data including a first pair of outside intersection and inside

5

intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of the polygon in the scanning direction with respect to said each scan line, based on the line intersection data for said each scan line obtained by said edge calculating step.

11. (Currently Amended) A polygon drawing apparatus which draws a polygon by drawing a polygon by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating device, said intensity value generating device comprising:

an edge calculating device which ~~derives~~ calculates line intersection data associated with an intersecting portion between each of edges of the polygon to be drawn, and each scan line, using vertex coordinates of the polygon to be drawn, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing device which sequentially calculates the intensity value to be given to each portion of the polygon in the scanning direction with respect to said each scan line, based on the line intersection data for said each scan line obtained by said edge calculating device, by performing first processing for calculating

6

changes in the intensity value from the outside intersection to the inside intersection of said first pair for each scan line, second processing for calculating changes in the intensity value from the inside intersection to the outside intersection of said second pair for each scan line, and third processing for combining results obtained in said first processing and said second processing, said first processing, said second processing and said third processing being performed in parallel with each other.

12.   (Previously Presented) A polygon drawing apparatus according to claim 11, wherein said edge calculating device comprises:

        means for calculating a first pair of positions on lattice points of displayed grid boxes that are located adjacent, respectively, to a pair of real intersections between said each scan line and said one of said edges that is located on the upstream side as viewed in the scanning direction, on the downstream side as viewed in the scanning direction, to obtain said first pair of outside intersection and inside intersection;

        means for calculating a second pair of positions on lattice points of the displayed grid boxes that are located adjacent, respectively, to a pair of real intersections between said each scan line and said one of said edges that is located on the downstream side as viewed in the scanning direction, to obtain said second pair of outside intersection and inside intersection; and

        means for calculating a first initial value from the intensity value at the outside intersection of said first pair, and a second initial value from the intensity value at a lattice point of one of displayed grid boxes that is located adjacent to the inside intersection of said second pair on the downstream side as viewed in the scanning direction.

13.   (Previously Presented) A polygon drawing apparatus according to claim 11, wherein said edge calculating device calculates said first pair of outside intersection and inside intersection and second pair of outside intersection and inside intersection, based on trajectories obtained by dragging a diamond-like block between vertices of the polygon to be drawn, said diamond-like block having vertical and horizontal dimensions each corresponding to an interval of a displayed grid.

14.   (Original) A polygon drawing apparatus according to claim 12, wherein said edge calculating device calculates said first pair of outside intersection and inside intersection and second pair of outside intersection and inside intersection, based on trajectories obtained by dragging a diamond-like block between vertices of the polygon to be drawn, said diamond-like block having vertical and horizontal dimensions each corresponding to an interval of a displayed grid.

15.   (Currently Amended) A polygon drawing apparatus according to claim 11, wherein said scan processing device comprises:

means for performing said first processing by generating the intensity value by progressively increasing the intensity value at said increasing rate in a range from the outside intersection to the inside intersection of said first pair for said each scan line and generating a constant intensity value in a range following the inside intersection of said first pair;

means for performing said second processing by generating the intensity value by progressively ~~increasing~~ decreasing the intensity value at an absolute value of said decreasing rate in a range from the inside intersection to the outside intersection of said second pair for said each scan line and generating said constant intensity value in a range following the outside intersection of said second pair; and

means for performing said third processing by subtracting a result of said second processing from a result of said first processing.

16.   (Currently Amended) A polygon drawing apparatus according to claim 12, wherein said scan processing device comprises:

means for performing said first processing by generating the intensity value by progressively increasing the intensity value at said increasing rate in a range from the outside intersection to the inside intersection of said first pair for said each scan line and generating a constant intensity value in a range following the inside intersection of said first pair;

means for performing said second processing by generating the intensity value by progressively ~~increasing~~ decreasing the intensity value at an absolute value of said decreasing rate in a range from the inside intersection to the outside intersection of

said second pair for said each scan line and generating said constant intensity value in a range following the outside intersection of said second pair; and

means for performing said third processing by subtracting a result of said second processing from a result of said first processing.

17. (Previously Presented) A polygon drawing apparatus according to claim 15, wherein said increasing rate is determined based on a slope of the edge on the upstream side as viewed in the scanning direction, and said decreasing rate is determined based on a slope of the edge on the downstream side as viewed in the scanning direction.

18. (Previously Presented) A polygon drawing apparatus according to claim 16, wherein said increasing rate is determined based on a slope of the edge on the upstream side as viewed in the scanning direction, and said decreasing rate is determined based on a slope of the edge on the downstream side as viewed in the scanning direction.

19. (Previously Presented) A polygon drawing apparatus according to claim 15, wherein when a vertex of the polygon is located between two adjacent scan lines, said scan processing device sets said constant intensity value to a value that depends upon a distance from one of the two adjacent scan lines to said vertex.

20. (Previously Presented) A polygon drawing apparatus according to claim 16, wherein when a vertex of the polygon is located between two adjacent scan lines, said scan processing device sets said constant intensity value to a value that depends upon a distance from one of the two adjacent scan lines to said vertex.

21. (Previously Presented) A polygon drawing apparatus according to claim 11, wherein when a vertex other than vertices at upper and lower ends of the polygon is located between two adjacent scan lines, said scan processing device separately performs processing based on a first distance from the upper one of the two adjacent scan lines to said vertex, and performs processing based on a second distance from the lower one of the two adjacent scan lines to said vertex, and calculates the intensity value by combining results of said processing based on said first distance and said processing based on said second distance.

22. (Previously Presented) A polygon drawing apparatus according to claim 12, wherein when a vertex other than vertices at upper and lower ends of the polygon is located between two adjacent scan lines, said scan processing device separately performs processing based on a first distance from the upper one of the two adjacent scan lines to said vertex, and performs processing based on a second distance from the lower one of the two adjacent scan lines to said vertex, and calculates the intensity value by combining results of said processing based on said first distance and said processing based on said second distance.

23. (Currently Amended) A polygon drawing method of drawing a polygon by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising:

an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each of edges of the polygon to be drawn, and each scan line, using vertex coordinates of the polygon to be drawn, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of the polygon in the scanning direction with respect to said each scan line, based on the line intersection data for said each scan line obtained by said edge calculating step, by performing first processing for calculating changes in the intensity value from the outside intersection to the inside intersection of said first pair for each scan line; second processing for calculating changes in the intensity value from the inside intersection to the outside intersection of said second pair for

10

each scan line, and third processing for combining results obtained in said first processing and said second processing, said first processing, said second processing and said third processing being performed in parallel with each other.

24.   (Currently Amended) A storage medium which stores a program that enables implementation of a method of drawing a polygon by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising:

an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each of edges of the polygon to be drawn, and each scan line, using vertex coordinates of the polygon to be drawn, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of the polygon in the scanning direction with respect to said each scan line, based on the line intersection data for said each scan line obtained by said edge calculating step, by performing first processing for calculating changes in the intensity value from the outside intersection to the inside intersection of said first pair for each scan line, second processing for calculating changes in the intensity value from the inside intersection to the outside intersection of said second pair for each scan line, and third processing for combining results obtained in said first processing and said second processing, said first processing, said second processing and said third processing being performed in parallel with each other.

11

25.   (Currently Amended) A polygon drawing apparatus which draws a polygon by combining a plurality of triangles and by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating device, said intensity value generating device comprising:

an edge calculating device which receives a drawing command including vertex coordinates of each of the triangles to be drawn and a control bit which indicates whether each edge of each of the triangles is to be drawn, and derives calculates line intersection data relating to a position of an intersecting portion between said each edge of each of the triangles and each scan line, using the vertex coordinates of each of the triangles to be drawn and the control bit, and an intensity value of the intersecting portion, based on said control bit; and

a scan line processing device which sequentially calculates the intensity value to be given to each portion of each of the triangles in a scanning direction with respect to said each scan line, based on the line intersection data obtained for said each scan line by said edge calculating device.

26.   (Currently Amended) A polygon drawing apparatus which draws a polygon by combining a plurality of triangles and by performing intensity processing on the plurality of triangles to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating device, said intensity value generating device comprising:

an edge calculating device which receives a drawing command including vertex coordinates of each of the triangles to be drawn and a control bit which indicates whether intensity processing is to be performed on each edge of each of the triangles, and derives calculates line intersection data associated with an intersecting portion between each edge of each of the triangles to be drawn and each scan line, using the vertex coordinates of each of the triangles to be drawn and the control bit, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located

12

on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair, and an intensity value that is set to 1 when said control bit indicates that no intensity processing is to be performed on said each edge of each of the triangles; and

a scan line processing device which sequentially calculates the intensity value to be given to each portion of the each of the triangles in the scanning direction with respect to each scan line, based on the line intersection data obtained for said each scan line by said edge calculating device.

27.   (Currently Amended) A polygon drawing apparatus which draws a polygon by combining a plurality of triangles and by performing intensity processing on the plurality of triangles to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating device, said intensity value generating device comprising:

an edge calculating device which receives a drawing command including vertex coordinates of each of the triangles to be drawn and a first control bit which indicates whether each edge of each of the triangles is to be drawn, and a second control bit which indicates whether intensity processing is to be performed on each edge of each of the triangles, and ~~derives~~ calculates line intersection data associated with an intersecting portion between each edge of each of the triangles to be drawn and each scan line, using the vertex coordinates of each of the triangles to be drawn and the first and second control bits, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair, and an intensity value that is set to 0 when said first control bit indicates that

13

said each edge of each of the triangles is not to be drawn, said intensity value being set to 1 when said second control bit indicates that the intensity processing is not to be performed on said each edge of each of the triangles; and

a scan line processing device that sequentially calculates the intensity value to be given to each portion of the each of the triangles in the scanning direction with respect to each scan line, based on the line intersection data obtained for said each scan line by said edge calculating device.

28.   (Currently Amended) A polygon drawing method of drawing a plurality of triangles so as to draw a polygon by combining the plurality of triangles and by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising the steps of:

inputting a drawing command including vertex coordinates of each of the triangles to be drawn and a control bit which indicates whether each edge of each of the triangles is to be drawn; and

drawing an interior of each of the triangles with a predetermined intensity using the vertex coordinates of each of the triangles to be drawn and the control bit based on said drawing command, while determining an intensity value of said each edge of each of the triangles by referring to said control bit when drawing said each edge of each of the triangles.

29.   (Currently Amended) A polygon drawing method of drawing a polygon by combining a plurality of triangles and by performing intensity processing on the plurality of triangles to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising the steps of:

inputting a drawing command including vertex coordinates of each of the triangles to be drawn and a control bit which indicates whether intensity processing is to be performed on each edge of each of the triangles; and

drawing an interior of each of the triangles with a predetermined intensity using the vertex coordinates of each of the triangles to be drawn and the control bit based on said drawing command, while determining an intensity value of said each

14

edge-of each of the triangles by referring to said control bit when drawing said each edge of each of the triangles.

30.   (Currently Amended) A polygon drawing method of drawing a polygon by combining a plurality of triangles and by performing intensity processing on the plurality of triangles to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising the steps of:

inputting a drawing command including vertex coordinates of each of the triangles to be drawn and a first control bit which indicates whether each edge of each of the triangles is to be drawn, and a second control bit which indicates whether intensity processing is to be performed on each edge of each of the triangles; and

drawing an interior of each of the triangles with a predetermined intensity using the vertex coordinates of each of the triangles to be drawn and the first and second control bits based on said drawing command, while determining an intensity value of said each edge of each of the triangles by referring to said first and second control bits when drawing said each edge of each of the triangles.

31.   (Previously Presented) A polygon drawing method according to claim 28, wherein the intensity value is determined by a ratio of an intensity value of a pixel that is to be drawn, to an intensity value of a pixel that is originally located at a position where the pixel to be drawn exists, and wherein

when said control bit indicates that said each edge of each of the triangles is not to be drawn, the intensity value of the pixel to be drawn is set to 0.

32.   (Previously Presented) A polygon drawing method according to claim 30, wherein the intensity value is determined by a ratio of an intensity value of a pixel that is to be drawn, to an intensity value of a pixel that is originally located at a position where the pixel to be drawn exists, and wherein
when said control bit indicates that said each edge of each of the triangles is not to be drawn, the intensity value of the pixel to be drawn is set to 0.

15

33.   (Previously Presented) A polygon drawing method according to claim 29, wherein the intensity value is determined by a ratio of an intensity value of a pixel that is to be drawn to an intensity value of a pixel that is originally located at a position where the pixel to be drawn exists, and wherein

when said control bit indicates that the intensity processing is not to be performed on said each edge of each of the triangles, the intensity value of the pixel to be drawn is set to 1.

34.   (Previously Presented) A polygon drawing method according to claim 30, wherein the intensity value is determined by a ratio of an intensity value of a pixel that is to be drawn to an intensity value of a pixel that is originally located at a position where the pixel to be drawn exists, and wherein

when said control bit indicates that the intensity processing is not to be performed on said each edge of each of the triangles, the intensity value of the pixel to be drawn is set to 1.

35.   (Currently Amended) A polygon drawing method according to claim 29,

further comprising:

an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each edge of each of the triangles to be drawn and each scan line, using the vertex coordinates of each of the triangles to be drawn and the control bit, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan lien and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of the each of the triangles in the scanning direction with respect

16

to each scan line, based on the line intersection data obtained for said each scan line by said edge calculating step.

36. (Currently Amended) A polygon drawing method according to claim 30,

further comprising:

an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each edge of each of the triangles to be drawn and each scan line, using the vertex coordinates of each of the triangles to be drawn and the first and second control bits, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan lien and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of the each of the triangles in the scanning direction with respect to each scan line, based on the line intersection data obtained for said each scan line by said edge calculating step.

37. (Currently Amended) A storage medium that stores a program that enables implementation of a polygon drawing method of drawing a plurality of triangles so as to draw a polygon by combining the plurality of triangles and by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising the steps of:

inputting a drawing command including vertex coordinates of each of the triangles to be drawn and a control bit which indicates whether each edge of each of the triangles is to be drawn; and

17

drawing an interior of each of the triangles with a predetermined intensity using the vertex coordinates of each of the triangles to be drawn and the control bit based on said drawing command, while determining an intensity value of said each edge of, each of the triangles by referring to said control bit when drawing said each edge of each of the triangles.

38.   (Currently Amended) A storage medium that stores a program that enables implementation of a polygon drawing method of drawing a polygon by combining a plurality of triangles and by performing intensity processing on the plurality of triangles to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising the steps of:

    inputting a drawing command including vertex coordinates of each of the triangles to be drawn and a control bit which indicates whether intensity processing is to be performed on each edge of each of the triangles; and

    drawing an interior of each of the triangles with a predetermined intensity using the vertex coordinates of each of the triangles to be drawn and the control bit based on said drawing command, while determining an intensity value of said

    each edge of each of the triangles by referring to said control bit when drawing said each edge of each of the triangles.

39.   (Currently Amended) A storage medium that stores a program that enables implementation of a polygon drawing method of drawing a polygon by combining a plurality of triangles and by performing intensity processing on the plurality of triangles to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising the steps of:

    inputting a drawing command including vertex coordinates of each of the triangles to be drawn and a first control bit which indicates whether each edge of each of the triangles is to be drawn, and a second control bit which indicates whether intensity processing is to be performed on each edge of each of the triangles; and

    drawing an interior of each of the triangles with a predetermined intensity using the vertex coordinates of each of the triangles to be drawn and the first and

second control bits ~~based on said drawing command~~, while determining an intensity value of said each edge of each of the triangles by referring to said first and second control bits when drawing said each edge of each of the triangles.

40.   (Previously Presented) A polygon drawing method according to claim 30, wherein the intensity value is determined by a ratio of an intensity value of a pixel that is to be drawn, to an intensity value of a pixel that is originally located at a position where the pixel to be drawn exists, and wherein

when said control bit indicates that each edge of the triangles is not to be drawn, the intensity value of the pixel to be drawn is set to 0.

41.   (Previously Presented) A polygon drawing method according to claim 30, wherein the intensity value is determined by a ratio of an intensity value of a pixel that is to be drawn to an intensity value of a pixel that is originally located at a position where the pixel to be drawn exists, and wherein

when said control bit indicates that the intensity processing is not to be performed on said each edge of each of the triangles, the intensity value of the pixel to be drawn is set to 1.

42.   (Currently Amended) A polygon drawing method according to claim [[30]]28, further comprising:

an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each edge of each of the triangles to be drawn and each scan line, using the vertex coordinates of each of the triangles to be drawn and the control bit, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside

19

intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of each of the triangles in the scanning direction with respect to each scan line, based on the line intersection data obtained for said each scan line by said edge calculating step.

43. (Currently Amended) A polygon drawing apparatus which draws polygon by performing intensity processing a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating device, said intensity value generating device comprising:

an edge calculating device which ~~derives~~ calculates line intersection data associated with an intersecting portion between each of edges of the polygon to be drawn, and each scan line, using the vertex coordinates of the polygon to be drawn, the line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing device which sequentially calculates the intensity value to be given to each portion of the polygon in the scanning direction with respect to said each scan line, based on the line intersection data obtained for said each scan line by said edge calculating device, said scan line processing device including means for maintaining the intensity value of said each portion inside the polygon constant while gradually changing the intensity value of said each portion along each edge of the polygon.

20

44.   (Previously Presented) A polygon drawing apparatus according to claim 43, wherein said edge calculating device comprises:

means for calculating a first pair of positions on lattice points of displayed grid boxes that are located adjacent, respectively, to a pair of real intersections between said each scan line and said one of said edges that is located on the upstream side as viewed in the scanning direction, on the downstream side as viewed in the scanning direction, to obtain said first pair of outside intersection and inside intersection;

means for calculating a second pair of positions on lattice points of the displayed grid boxes that are located adjacent, respectively, to a pair of real intersections between said each scan line and said one of said edges that is located on the downstream side as viewed in the scanning direction, on the upstream side as viewed in the scanning direction, to obtain said second pair of outside intersection and inside intersection; and

means for calculating a first initial value from the intensity value at the outside intersection of said first pair, and a second initial value from the intensity value at a lattice point of one of the displayed grid boxes that is located adjacent to the inside intersection of said second pair on the downstream side as viewed in the scanning direction.

45.   (Previously Presented) A polygon drawing apparatus according to claim 43, wherein said edge calculating device calculates said first pair of outside intersection and inside intersection and said second pair of outside intersection and inside intersection, based on trajectories obtained by dragging a diamond-like block between vertices of the polygon to be drawn, said diamond-like block having vertical and horizontal dimensions each corresponding to an interval of a displayed grid.

46.   (Previously Presented) A polygon drawing apparatus according to claim 44, wherein said edge calculating device calculates said first pair of outside intersection and inside intersection and said second pair of outside intersection and inside intersection, based on trajectories obtained by dragging a diamond-like block between vertices of the polygon to be drawn, said diamond-like block having vertical and horizontal dimensions each corresponding to an interval of a displayed grid.

21

47.   (Previously Presented) A polygon drawing apparatus according to claim 43, wherein said scan line processing device comprises:

means for generating the intensity value to be given to each portion of the polygon along the scanning direction in a range from the outside intersection to the inside intersection of said first pair for said each scan line, by progressively increasing the intensity value at said increasing rate in said range from the outside intersection to the inside intersection of said first pair for said each scan line;

means for generating a constant intensity value to be given to each portion of said polygon along the scanning direction in a range from the inside intersection of said first pair to the inside intersection of said second pair for said each scan line; and

means for generating the intensity value to be given to each portion of the polygon along the scanning direction in a range from the inside intersection to the outside intersection of said second pair for said each scan line, by progressively decreasing the intensity value at said decreasing rate in said range from the inside intersection to the outside intersection of said second pair for said each scan line.

48.   (Previously Presented) A polygon drawing apparatus according to claim 44, wherein said scan line processing device comprises:

means for generating the intensity value to be given to each portion of the polygon along the scanning direction in a range from the outside intersection to the inside intersection of said first pair for said each scan line, by progressively increasing the intensity value at said increasing rate in said range from the outside intersection to the inside intersection of said first pair for said each scan line;

means for generating a constant intensity value to be given to each portion of said polygon along the scanning direction in a range from the inside intersection of said first pair to the inside intersection of said second pair for said each scan line; and

means for generating the intensity value to be given to each portion of the polygon along the scanning direction in a range from the inside intersection to the outside intersection of said second pair for said each scan line, by progressively decreasing the intensity value at said decreasing rate in said range from the inside intersection to the outside intersection of said second pair for said each scan line.

49.   (Previously Presented) A polygon drawing apparatus according to claim 47, wherein said increasing rate is determined based on a slope of the edge on the upstream side as viewed in the scanning direction, and said decreasing rate is determined based on a slope of the edge on the downstream side as viewed in the scanning direction.

50.   (Previously Presented) A polygon drawing apparatus according to claim 48, wherein said increasing rate is determined based on a slope of the edge on the upstream side as viewed in the scanning direction, and said decreasing rate is determined based on a slope of the edge on the downstream side as viewed in the scanning direction.

51.   (Currently Amended) A polygon drawing method of drawing a polygon by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising:

an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each of edges of the polygon to be drawn, and each scan line, using the vertex coordinates of the polygon to be drawn, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of the polygon in the scanning direction with respect to said each scan line, based on the line intersection data for said each scan line obtained by said edge calculating step, said edge calculating step including a step of maintaining the intensity value of said each portion inside the polygon constant while gradually changing the intensity value of said each portion along each edge of the polygon.

52.   (Currently Amended) A storage medium which stores a program that enables implementation of a method of drawing a polygon by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising:

an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each of edges of the polygon to be drawn, and each scan line, using the vertex coordinates of the polygon to be drawn, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of the polygon in the scanning direction with respect to said each scan line, based on the line intersection data for said each scan line obtained by said edge calculating step, said edge calculating step including a step of maintaining the intensity value of said each portion inside the polygon constant while gradually changing the intensity value of said each portion along each edge of the polygon.

53.   (Currently Amended) A polygon drawing apparatus which draws a polygon by drawing a polygon by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating device, said intensity value generating device comprising:

an edge calculating device which ~~derives~~ calculates line intersection data associated with an intersecting portion between each of edges of the polygon to be drawn, and each scan line, using the vertex coordinates of the polygon to be drawn, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one

of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing device which sequentially calculates the intensity value to be given to each portion of the polygon in the scanning direction with respect to said each scan line, based on the line intersection data for said each scan line obtained by said edge calculating device, by performing first processing for calculating changes in the intensity value from the outside intersection to the inside intersection of said first pair for each scan line, second processing for calculating changes in the intensity value from the inside intersection to the outside intersection of said second pair for each scan line, and third processing for combining results obtained in said first processing and said second processing, said first processing, said second processing and said third processing being performed in parallel with each other, said scan line processing device including means for maintaining the intensity value of said each portion inside the polygon constant while gradually changing the intensity value of said each portion along each edge of the polygon.

54. (Previously Presented) A polygon drawing apparatus according to claim 53, wherein said edge calculating device comprises:

means for calculating a first pair of positions on lattice points of displayed grid boxes that are located adjacent, respectively, to a pair of real intersections between said each scan line and said one of said edges that is located on the upstream side as viewed in the scanning direction, on the downstream side as viewed in the scanning direction, to obtain said first pair of outside intersection and inside intersection;

means for calculating a second pair of positions on lattice points of the displayed grid boxes that are located adjacent, respectively, to a pair of real intersections between said each scan line and said one of said edges that is located on the downstream side as viewed in the scanning direction, to obtain said second pair of outside intersection and inside intersection; and

means for calculating a first initial value from the intensity value at the outside intersection of said first pair, and a second initial value from the intensity value at a lattice point of one of displayed grid boxes that is located adjacent to the inside intersection of said second pair on the downstream side as viewed in the scanning direction.

55. (Previously Presented) A polygon drawing apparatus according to claim 53, wherein said edge calculating device calculates said first pair of outside intersection and inside intersection and second pair of outside intersection and inside intersection, based on trajectories obtained by dragging a diamond-like block between vertices of the polygon to be drawn, said diamond-like block having vertical and horizontal dimensions each corresponding to an interval of a displayed grid.

56. (Previously Presented) A polygon drawing apparatus according to claim 54, wherein said edge calculating device calculates said first pair of outside intersection and inside intersection and second pair of outside intersection and inside intersection, based on trajectories obtained by dragging a diamond-like block between vertices of the polygon to be drawn, said diamond-like block having vertical and horizontal dimensions each corresponding to an interval of a displayed grid.

57. (Currently Amended) A polygon drawing apparatus according to claim 53, wherein said scan processing device comprises:

means for performing said first processing by generating the intensity value by progressively increasing the intensity value at said increasing rate in a range from the outside intersection to the inside intersection of said first pair for said each scan line and generating a constant intensity value in a range following the inside intersection of said first pair;

means for performing said second processing by generating the intensity value by progressively ~~increasing~~ decreasing the intensity value at an absolute value of said decreasing rate in a range from the inside intersection to the outside intersection of said second pair for said each scan line and generating said constant intensity value in a range following the outside intersection of said second pair; and

means for performing said third processing by subtracting a result of said second processing from a result of said first processing.

58.   (Currently Amended) A polygon drawing apparatus according to claim 54, wherein said scan processing device comprises:

means for performing said first processing by generating the intensity value by progressively increasing the intensity value at said increasing rate in a range from the outside intersection to the inside intersection of said first pair for said each scan line and generating a constant intensity value in a range following the inside intersection of said first pair;

means for performing said second processing by generating the intensity value by progressively ~~increasing~~ decreasing the intensity value at an absolute value of said decreasing rate in a range from the inside intersection to the outside intersection of said second pair for said each scan line and generating said constant intensity value in a range following the outside intersection of said second pair; and

means for performing said third processing by subtracting a result of said second processing from a result of said first processing.

59.   (Previously Presented) A polygon drawing apparatus according to claim 57, wherein said increasing rate is determined based on a slope of the edge on the upstream side as viewed in the scanning direction, and said decreasing rate is determined based on a slope of the edge on the downstream side as viewed in the scanning direction.

60.   (Previously Presented) A polygon drawing apparatus according to claim 58, wherein said increasing rate is determined based on a slope of the edge on the upstream side as viewed in the scanning direction, and said decreasing rate is determined based on a slope of the edge on the downstream side as viewed in the scanning direction.

61.   (Previously Presented) A polygon drawing apparatus according to claim 57, wherein when a vertex of the polygon is located between two adjacent scan lines, said scan processing device sets said constant intensity value to a value that depends upon a distance from one of the two adjacent scan lines to said vertex.

62.   (Previously Presented) A polygon drawing apparatus according to claim 58, wherein when a vertex of the polygon is located between two adjacent scan lines, said scan processing device sets said constant intensity value to a value that depends upon a distance from one of the two adjacent scan lines to said vertex.

63.   (Previously Presented) A polygon drawing apparatus according to claim 53, wherein when a vertex other than vertices at upper and lower ends of the polygon is located between two adjacent scan lines, said scan processing device separately performs processing based on a first distance from the upper one of the two adjacent scan lines to said vertex, and performs processing based on a second distance from the lower one of the two adjacent scan lines to said vertex, and calculates the intensity value by combining results of said processing based on said first distance and said processing based on said second distance.

64.   (Previously Presented) A polygon drawing apparatus according to claim 54, wherein when a vertex other than vertices at upper and lower ends of the polygon is located between two adjacent scan lines, said scan processing device separately performs processing based on a first distance from the upper one of the two adjacent scan lines to said vertex, and performs processing based on a second distance from the lower one of the two adjacent scan lines to said vertex, and calculates the intensity value by combining results of said processing based on said first distance and said processing based on said second distance.

65.   (Currently Amended) A polygon drawing method of drawing a polygon by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising:

        an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each of edges of the polygon to be drawn, and each scan line, using the vertex coordinates of the polygon to be drawn, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a

28

second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of the polygon in the scanning direction with respect to said each scan line, based on the line intersection data for said each scan line obtained by said edge calculating step, by performing first processing for calculating changes in the intensity value from the outside intersection to the inside intersection of said first pair for each scan line; second processing for calculating changes in the intensity value from the inside intersection to the outside intersection of said second pair for each scan line, and third processing for combining results obtained in said first processing and said second processing, said first processing, said second processing and said third processing being performed in parallel with each other, said edge calculating step including a step of maintaining the intensity value of said each portion inside the polygon constant while gradually changing the intensity value of said each portion along each edge of the polygon.

66. (Currently Amended) A storage medium which stores a program that enables implementation of a method of drawing a polygon by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising:

an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each of edges of the polygon to be drawn, and each scan line, using the vertex coordinates of the polygon to be drawn, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a

29

downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of the polygon in the scanning direction with respect to said each scan line, based on the line intersection data for said each scan line obtained by said edge calculating step, by performing first processing for calculating changes in the intensity value from the outside intersection to the inside intersection of said first pair for each scan line, second processing for calculating changes in the intensity value from the inside intersection to the outside intersection of said second pair for each scan line, and third processing for combining results obtained in said first processing and said second processing, said first processing, said second processing and said third processing being performed in parallel with each other, said edge calculating step including a step of maintaining the intensity value of said each portion inside the polygon constant while gradually changing the intensity value of said each portion along each edge of the polygon.

67. (Currently Amended) A polygon drawing apparatus which draws a polygon by combining a plurality of triangles and by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating device, said intensity value generating device comprising:

an edge calculating device which receives a drawing command including vertex coordinates of each of the triangles to be drawn and a control bit which indicates whether each edge of each of the triangles is to be drawn, and ~~derives~~ calculates line intersection data relating to a position of an intersecting portion between said each edge of each of the triangles and each scan line, using the vertex coordinates of each of the triangles to be drawn and the control bit, and an intensity value of the intersecting portion, based on said control bit; and

a scan line processing device which sequentially calculates the intensity value to be given to each portion of each of the triangles in a scanning direction with respect to said each scan line, based on the line intersection data obtained for said each scan

line by said edge calculating device, said scan line processing device including means for maintaining the intensity value of said each portion inside each of the triangles constant while gradually changing the intensity value of said each portion along each edge of each of the triangles.

68.	(Currently Amended) A polygon drawing apparatus which draws a polygon by combining a plurality of triangles and by performing intensity processing on the plurality of triangles to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating device, said intensity value generating device comprising:

an edge calculating device which receives a drawing command including vertex coordinates of each of the triangles to be drawn and a control bit which indicates whether intensity processing is to be performed on each edge of each of the triangles, and derives calculates line intersection data associated with an intersecting portion between each edge of each of the triangles to be drawn and each scan line, using the vertex coordinates of each of the triangles to be drawn and the control bit, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair, and an intensity value that is set to 1 when said control bit indicates that no intensity processing is to be performed on said each edge of each of the triangles; and

a scan line processing device which sequentially calculates the intensity value to be given to each portion of the each of the triangles in the scanning direction with respect to each scan line, based on the line intersection data obtained for said each scan line by said edge calculating device, said scan line processing device including means for maintaining the intensity value of said each portion inside each of the

31

triangles constant while gradually changing the intensity value of said each portion along each edge of each of the triangles.

69.   (Currently Amended) A polygon drawing apparatus which draws a polygon by combining a plurality of triangles and by performing intensity processing on the plurality of triangles to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating device, said intensity value generating device comprising:

an edge calculating device which receives a drawing command including vertex coordinates of each of the triangles to be drawn and a first control bit which indicates whether each edge of each of the triangles is to be drawn, and a second control bit which indicates whether intensity processing is to be performed on each edge of each of the triangles, and derives calculates line intersection data associated with an intersecting portion between each edge of each of the triangles to be drawn and each scan line, using the vertex coordinates of each of the triangles to be drawn and the first and second control bits, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair, and an intensity value that is set to 0 when said first control bit indicates that said each edge of each of the triangles is not to be drawn, said intensity value being set to 1 when said second control bit indicates that the intensity processing is not to be performed on said each edge of each of the triangles; and

a scan line processing device that sequentially calculates the intensity value to be given to each portion of the each of the triangles in the scanning direction with respect to each scan line, based on the line intersection data obtained for said each scan line by said edge calculating device, said scan line processing device including means for maintaining the intensity value of said each portion inside each of the

32

triangles constant while gradually changing the intensity value of said each portion along each edge of each of the triangles.

70.   (Currently Amended) A polygon drawing method of drawing a plurality of triangles so as to draw a polygon by combining the plurality of triangles and by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising the steps of:

inputting a drawing command including <u>vertex coordinates of each of the triangles to be drawn and</u> a control bit which indicates whether each edge of each of the triangles is to be drawn;

drawing an interior of each of the triangles with a predetermined intensity <u>using the vertex coordinates of each of the triangles to be drawn and the control bit</u> ~~based on said drawing command~~, while determining an intensity value of said each edge of each of the triangles by referring to said control bit when drawing said each edge of each of the triangles; and

maintaining the intensity value of said each portion inside each of the triangles constant while gradually changing the intensity value of said each portion along each edge of each of the triangles.

71.   (Currently Amended) A polygon drawing method of drawing a polygon by combining a plurality of triangles and by performing intensity processing on the plurality of triangles to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising the steps of:

inputting a drawing command including <u>vertex coordinates of each of the triangles to be drawn and</u> a control bit which indicates whether intensity processing is to be performed on each edge of each of the triangles;

drawing an interior of each of the triangles with a predetermined intensity <u>using the vertex coordinates of each of the triangles to be drawn and the control bit</u> ~~based on said drawing command~~, while determining an intensity value of said each edge-of each of the triangles by referring to said control bit when drawing said each edge of each of the triangles; and

33

maintaining the intensity value of said each portion inside each of the triangles constant while gradually changing the intensity value of said each portion along each edge of each of the triangles.

72.   (Currently Amended) A polygon drawing method of drawing a polygon by combining a plurality of triangles and by performing intensity processing on the plurality of triangles to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising the steps of:

inputting a drawing command including vertex coordinates of each of the triangles to be drawn and a first control bit which indicates whether each edge of each of the triangles is to be drawn, and a second control bit which indicates whether intensity processing is to be performed on each edge of each of the triangles;

drawing an interior of each of the triangles with a predetermined intensity using the vertex coordinates of each of the triangles to be drawn and the first and second control bits based on said drawing command, while determining an intensity value of said each edge of each of the triangles by referring to said first and second control bits when drawing said each edge of each of the triangles; and

maintaining the intensity value of said each portion inside each of the triangles constant while gradually changing the intensity value of said each portion along each edge of each of the triangles.

73.   (Previously Presented) A polygon drawing method according to claim 70, wherein the intensity value is determined by a ratio of an intensity value of a pixel that is to be drawn, to an intensity value of a pixel that is originally located at a position where the pixel to be drawn exists, and wherein

when said control bit indicates that said each edge of each of the triangles is not to be drawn, the intensity value of the pixel to be drawn is set to 0.

74.   (Previously Presented) A polygon drawing method according to claim 72, wherein the intensity value is determined by a ratio of an intensity value of a pixel that is to be drawn, to an intensity value of a pixel that is originally located at a position where the pixel to be drawn exists, and wherein

34

when said control bit indicates that said each edge of each of the triangles is not to be drawn, the intensity value of the pixel to be drawn is set to 0.

75.   (Previously Presented) A polygon drawing method according to claim 71, wherein the intensity value is determined by a ratio of an intensity value of a pixel that is to be drawn to an intensity value of a pixel that is originally located at a position where the pixel to be drawn exists, and wherein

when said control bit indicates that the intensity processing is not to be performed on said each edge of each of the triangles, the intensity value of the pixel to be drawn is set to 1.

76.   (Previously Presented) A polygon drawing method according to claim 72, wherein the intensity value is determined by a ratio of an intensity value of a pixel that is to be drawn to an intensity value of a pixel that is originally located at a position where the pixel to be drawn exists, and wherein

when said control bit indicates that the intensity processing is not to be performed on said each edge of each of the triangles, the intensity value of the pixel to be drawn is set to 1.

77.   (Currently Amended) A polygon drawing method according to claim 71, further comprising:

an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each edge of each of the triangles to be drawn and each scan line, using the vertex coordinates of each of the triangles to be drawn and the control bit, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan lien and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity

value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of the each of the triangles in the scanning direction with respect to each scan line, based on the line intersection data obtained for said each scan line by said edge calculating step.

78.   (Currently Amended) A polygon drawing method according to claim 72, further comprising:

an edge calculating step of ~~deriving~~ calculating line intersection data associated with an intersecting portion between each edge of each of the triangles to be drawn and each scan line, using the vertex coordinates of each of the triangles to be drawn and the first and second control bits, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan lien and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of the each of the triangles in the scanning direction with respect to each scan line, based on the line intersection data obtained for said each scan line by said edge calculating step.

79.   (Currently Amended) A storage medium that stores a program that enables implementation of a polygon drawing method of drawing a plurality of triangles so as to draw a polygon by combining the plurality of triangles and by performing intensity processing on a polygon to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising the steps of:

inputting a drawing command including <u>vertex coordinates of each of the triangles to be drawn and</u> a control bit which indicates whether each edge of each of the triangles is to be drawn;

drawing an interior of each of the triangles with a predetermined intensity <u>using the vertex coordinates of each of the triangles to be drawn and the first and second control bits</u> ~~based on said drawing command~~, while determining an intensity value of said each edge of, each of the triangles by referring to said control bit when drawing said each edge of each of the triangles; and

maintaining the intensity value of said each portion inside each of the triangles constant while gradually changing the intensity value of said each portion along each edge of each of the triangles.

80.   (Currently Amended) A storage medium that stores a program that enables implementation of a polygon drawing method of drawing a polygon by combining a plurality of triangles and by performing intensity processing on the plurality of triangles to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising the steps of:

inputting a drawing command including <u>vertex coordinates of each of the triangles to be drawn and</u> a control bit which indicates whether intensity processing is to be performed on each edge of each of the triangles;

drawing an interior of each of the triangles with a predetermined intensity <u>using the vertex coordinates of each of the triangles to be drawn and the first and second control bits</u> ~~based on said drawing command~~, while determining an intensity value of said each edge of each of the triangles by referring to said control bit when drawing said each edge of each of the triangles; and

maintaining the intensity value of said each portion inside each of the triangles constant while gradually changing the intensity value of said each portion along each edge of each of the triangles.

81.   (Currently Amended) A storage medium that stores a program that enables implementation of a polygon drawing method of drawing a polygon by combining a plurality of triangles and by performing intensity processing on the plurality of

triangles to be drawn using an anti-aliasing method based on an intensity value generated by an intensity value generating step, said intensity value generating step comprising the steps of:

inputting a drawing command including vertex coordinates of each of the triangles to be drawn and a first control bit which indicates whether each edge of each of the triangles is to be drawn, and a second control bit which indicates whether intensity processing is to be performed on each edge of each of the triangles;

drawing an interior of each of the triangles with a predetermined intensity using the vertex coordinates of each of the triangles to be drawn and the first and second control bits based on said drawing command, while determining an intensity value of said each edge of each of the triangles by referring to said first and second control bits when drawing said each edge of each of the triangles; and

maintaining the intensity value of said each portion inside each of the triangles constant while gradually changing the intensity value of said each portion along each edge of each of the triangles.

82.   (Previously Presented) A polygon drawing method according to claim 72, wherein the intensity value is determined by a ratio of an intensity value of a pixel that is to be drawn, to an intensity value of a pixel that is originally located at a position where the pixel to be drawn exists, and wherein

when said control bit indicates that each edge of the triangles is not to be drawn, the intensity value of the pixel to be drawn is set to 0.

83.   (Previously Presented) A polygon drawing method according to claim 72, wherein the intensity value is determined by a ratio of an intensity value of a pixel that is to be drawn to an intensity value of a pixel that is originally located at a position where the pixel to be drawn exists, and wherein

when said control bit indicates that the intensity processing is not to be performed on said each edge of each of the triangles, the intensity value of the pixel to be drawn is set to 1.

84.   (Currently Amended)A polygon drawing method according to claim [[72]]70, further comprising:

38

an edge calculating step of ~~deriving~~ <u>calculating</u> line intersection data associated with an intersecting portion between each edge of each of the triangles to be drawn and each scan line, <u>using the vertex coordinates of each of the triangles to be drawn and the control bit,</u> said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line, said line intersection data including a first pair of outside intersection and inside intersection that represent intersecting positions between said each scan line and one of the edges that is located on an upstream side as viewed in a scanning direction, a second pair of outside intersection and inside intersection that represent intersection positions between said each scan line and one of the edges that is located on a downstream side as viewed in the scanning direction, an increasing rate at which an intensity value increases from the outside intersection to the inside intersection of said first pair, and a decreasing rate at which the intensity value decreases from the inside intersection to the outside intersection of said second pair; and

a scan line processing step of sequentially calculating the intensity value to be given to each portion of each of the triangles in the scanning direction with respect to each scan line, based on the line intersection data obtained for said each scan line by said edge calculating step.